



State of Utah

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DIVISION OF ENVIRONMENTAL
RESPONSE AND REMEDIATION

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1266091 - R8 SDMS

ERRC-050-13

April 11, 2013

Christopher Gamvroulas, President
Ivory Development LLC
978 Woodoak Lane
Salt Lake City, Utah 84117

RE: Park City Heights, VCP Site #C077, Park City, UT

Dear Mr. Gamvroulas:

The Division of Environmental Response and Remediation (DERR) has completed review of the draft **Site Characterization Report**, dated January 9, 2013, for the referenced site. The DERR's review comments are enclosed with this letter for your information. In addition, the document has also been reviewed by the U.S. Environmental Protection Agency (EPA). The EPA's comments are also included. The two agencies agreed on the nature of the comments so the comments are not separated by agency. Please revise the report to address the comments.

Also, the DERR believes the next step under the Voluntary Cleanup Program is a remedial action plan. However, prior to developing this plan, the DERR recommends the parties work to finalize the report and begin discussion on the nature of the remedy and plan. This will streamline the process and hopefully avoid unnecessary revisions.

Should you have any questions regarding this letter, the agreement or the voluntary cleanup process, please contact me at (801) 536-4092.

Sincerely,

Elizabeth Palmer, P.G., Project Manager
Division of Environmental Response and Remediation

EAP/rm

Enclosure

cc: Steve Jenkins, Summit County Public Health Department
Kathryn Hernandez, U.S. Environmental Protection Agency, Region VIII
Jim Blankenau, Park City Municipal Corporation
Amy Findley, IHI Environmental Consultants

PARK CITY HEIGHTS VCP SITE #077 - SITE CHARACTERIZATION REPORT REVIEW COMMENTS

General Comments:

1. Please revise the document to include a more comprehensive discussion of both canals. This can be completed by combing historical research information with actual field knowledge as well as the corresponding analytical results from the investigation. The Site Characterization Report is the appropriate document for this information, since the next document anticipated is the Remedial Action Plan, which typically focuses on the steps needed for remediation. As an example, and to assist Ivory Homes with this comment, please include the following:

- A physical description of the soils in the canals and elsewhere on-site. For instance, it is the DERR's understanding that the soils in the southern canal were visually distinct from the surrounding soil and were fairly well defined by the canal (narrow in width and shallow). It is also the DERR's understanding that the tailings are very fine, possibly mill tailings or ground up fines. The concentrations are also orders of magnitude above those in the Northern Canal (80,000 ppm lead versus 8,000 ppm lead). With regard to the Northern Canal, the colors of the tailings in this canal are visually distinctive and will help with the removal of contaminants in this area. The tailings appear to be predominantly yellow and gold, red and almost white fines, with the size varying from powders and caked powders to gravel to rock-sized tailings.
- A description of the mining history in the area, a discussion of the possible source(s) of tailings in the canals, and the approximate ages of the canals.
- The topographic relationship of the canals to the surrounding area. Please indicate if the canals were topographically downgradient from Park City and flowed toward Richardson Flats and/or "Clark's Ranch". Please indicate if the canals flowed via gravity, with areas included for settling ponds, or were designed to build up a head of pressure to push the tailings downstream. The issue of settling ponds is important as these areas tend to be wider in aerial extent and could harbor more contaminant mass.

2. During previous discussions, Ivory Homes indicated they intended to conduct independent research of the historical use of the property. The DERR welcomes as much additional historical information in this report, as possible, to strengthen the document, and to confirm the areas of interest as well as those that are determined not of interest because there is no evidence of historical mining operations. This will ultimately assist with remedial action decisions.

3. Based on available information, the Northern Canal was built in 1932 and was also apparently lined with concrete cement at the bottom and perhaps some of the sides. This cement has been disturbed and broken up in quite a few areas. Currently, it is unknown if the cement is contaminated so this issue should be considered during the upcoming cleanup, especially if visual staining is evident.

4. Please provide a rationale for the lead and arsenic reported at depth, above the screening levels, in Grid SN-11. For example, please indicate if this area could have been impacted by historical flood irrigation since extensive rills were noted north and east of the South Canal. If

additional contamination is suspected at depth, field procedures should be employed during remedial action to screen the soils as the excavation proceeds.

5. There appears to be an anomalous trend where arsenic values are elevated above the 100 ppm arsenic screening value, but lead is not above its screening value. This occurs in trench NC5 and grids N-06, N-08 and NN-12. The trench and grids are located in the northeast section of the property. The 2006 aerial map shows this general area to be void of vegetation. Please discuss the historical use of this area. In addition, please indicate if there is any record of site grading, soil removal or fill material being brought into this area in the past.

6. The report states the DERR split soil sample results are in Table 5 of Appendix 3, but upon review, this table only appears to include the results of the groundwater samples. It appears the split soil sample results are actually presented in Table 6. Please revise the text to address this comment. In addition, please revise the tables to show the Relative Percent Differences (RPD), as specified in the QAPP, between Ivory Homes' and the DERR's split sample results. The results appear to be very close and there should only be minor differences in the RPD.

7. Please revise the document to include an additional Figure that combines Figures 9 and 10 together so that the grid colors and impacted depths are shown together. This will provide a more comprehensive overview of the nature and extent of contamination that will be addressed in the upcoming remedial action phase.

Specific Comments:

1. Page 1, Section 1.1, 3rd paragraph: Please cite the acreage originally enrolled in the VCP. In addition, please note that the VCP agreement will need to be amended, before any remedy is accepted and implemented, to cover the southern canal and any additional areas that will be considered part of the site moving forward.

2. Page 3, Section 3.0: Please revise the text to indicate the DERR split samples were sent to ALS Laboratories as an independent check. This comment is also applicable to Section 3.1.1, Section 3.1.2, Section 3.1.4 and Section 5.0.

3. Page 12, Section 6.0, Conclusions: Please revise the text to note the estimated amount of contaminated soils from each canal/area. Since there are samples at depth from the investigation that are still above the screening levels, it is prudent to caution that the volume estimates may be low. The DERR is comfortable with the delineation and believes the remaining uncertainty regarding the extent of impact can be addressed through proper contingency and confirmation sampling procedures in the Remedial Action Plan.

4. Page 13, Section 6.0, Conclusions, last sentence in last paragraph: The last half of the last sentence should read: "...however, groundwater samples did not identify lead and arsenic above the Screening Levels at the site in the areas of the two drill holes."

5. Table 2. Sample NC1-B @ 5-6', SPLP results for lead should read 0.0540 ppm instead of 0.540 ppm. Please revise the table to address this comment.

6. Table 5. This table indicates there is one slight exceedance of the dissolved cadmium screening level in groundwater monitoring well MW-PS1. However, this screening level was established for groundwater with a direct influence on surface water. Since this site is in an upland area, the depth to water is deep, the contaminated soil will be removed and the groundwater will not be accessed for drinking water purposes, the DERR is willing to evaluate the proposed remedial actions prior to determining if additional groundwater investigation is necessary. However, the DERR does believe it is prudent to sample the wells again in the future to continue to evaluate water quality. Please propose additional sampling to address this comment. Part of the remedy for the site will include institutional controls on groundwater usage.

7. Table 7. The XRF correlation to laboratory data for arsenic is lower than specified in the QAPP ($R=0.85$ in test pit arsenic samples and $R=0.82$ in surface soil samples). Since the range of values spans one or two orders of magnitude, the data can be log transformed first and then correlated. This may provide better R values. Please revise the text to address this comment.

8. Table 7. It appears the XRF and Analytical Results column headings are switched. Please verify and correct.

End of Comments.